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Serial Number: \_\_\_\_\_

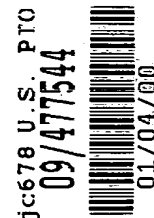
Appn. Filed: \_\_\_\_\_

Applicants: **V. Ostromoukhov, R. D. Hersch**

Appn. Title: Method and Apparatus for Generating Digital Halftone Images by Multi-color Dithering

Examiner/GAU: \_\_\_\_\_/\_\_\_\_\_

## Information Disclosure Statement



Commissioner of Patents and Trademarks  
Washington, District of Columbia 20231

Sir:

Attached is a completed Form PTO-1449 and copies of the pertinent parts of the references cited thereon. Following are comments on the cited patent references :

US Patent 4,837,613 teaches a method for selecting the intensity level of a fixed set of primary colors. This method is applicable for displays having more than one intensity level per primary color, for example RGB displays, but not for printers which may incorporate many primary colors to be printed in bi-level mode (either no ink, or ink).

One way of generating a dither pattern for an RGB value, mainly for displays, is taught by D.N. Weise and H. Gunter Zieber in US patent 5,485,558, issued January 16, 1996. That invention is however limited to applications where one dither array, for example an 8x8 array can be associated to each input image color pixel. Since the dither array must remain of small size, that method does not allow to create at the screening layer artistic screen shapes. Furthermore, our multi-color dithering method, characterized by the determination of the partition within which the dither function is located, reproduces original picture edges with a much higher fidelity.

US patent 5,070,413 teaches another method for generating non-overlapping colors by vector error diffusion in color space. However, error-diffusion has the drawback of inducing considerable dot gain, compared with clustered dot dithering methods. In addition, error-diffusion does not allow to create user-defined screen shapes.

US patent 4,812,899 teaches a method for generating non-overlapping colors by dividing a picture surface into sub-surfaces made of juxtaposed elemental areas. This juxtaposition does not allow to generate output images having user-defined screen shapes, for example artistic screen shapes.

Lausanne, Dec. 21, 1999

Very respectfully,

Roger D. Hersch  
Professor

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